05/7/22 m

Roll Number ---------- (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	7th
Subject	Instrumental Methods of Analysis
Subject Code	BP701T
Paper ID	78387
Time	3Hours
Maximum Marks	75

Instructions to Candidates: *No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.*
Section A consists of **Ten parts of 2 marks each (Objective Type); Attempt **ALL**.*
***Section B consists of **Three** questions carrying 10 marks each (Long Answer); attempt any **TWO**.*
**** Section C consists of **Nine** questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.*

Section A (10 X2 = 20)

1. Give very short answers to the followings (2 marks each):

i.	Define Retention Time. Give its importance.
ii.	Briefly tell about Reverse Phase Chromatography.
iii.	Write about Carrier gases used in Gas Chromatography.
iv.	What is Bathochromic shift?
v.	Name two UV Detectors.
vi.	Give two examples of IR transparent materials.
vii.	Define the term Fluorescence and Phosphorescence.
viii.	Give Principle of Atomic Absorption Spectroscopy.
ix.	Types of Pumps in HPLC.
x.	Principle of Ion Exchange Chromatography.

Section B (2 X 10 = 20)

2.	Give principle and details of components of Double beam UV-Visible Spectrophotometer.
3.	Explain principle, instrumentation and application of HPLC.
4.	Discuss the various factor affecting molecular vibrations in IR Spectroscopy.

Section C (7 X 5 = 35)

5.	Explain the types of molecular vibrations in IR spectroscopy.
6.	Give principle and instrumentation of Flame Photometer.
7.	Write a note on methodology involved in Thin layer Chromatography.
8.	Explain in brief the Affinity chromatography.
9.	Classify Ion Exchange Resins and explain the principle of Ion exchange chromatography.
10.	Write a note on factors affecting fluorescence.
11.	Describe various columns used in Gas Chromatography.
12.	Write principle and application of paper chromatography.
13.	Briefly write about theory and principle of Gel Permeation chromatography.

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Note: Disclosure of identity by writing mobile number or making request for passing on any page of answer-sheet will lead to UMC against the candidate.

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****Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.*

Section A (10 X2 = 20)

1.	Give very short answers to the followings (2 marks each):
i.	Name the appropriate technique to determine elemental impurities.
ii.	What is the wavelength range corresponding to UV-Visible spectroscopy?
iii.	In which technique Excitation and emission monochromators are used?
iv.	In IR spectroscopy, by what reason, the vibration between atoms is caused?
v.	Which technique is used to analyse colloidal system and why?
vi.	Define Rf value. What is its importance?
vii.	Which type of gel is mostly used for DNA separation?
viii	Give two examples of IR transparent materials.
ix.	State the principle of Ion exchange chromatography.
x.	Give the difference between fluorescence and Phosphorescence.

Section B (2 X 10 = 20)

2.	What are the sampling techniques used in IR spectroscopy?
3.	What do you mean by HPLC? Explain different parts of HPLC instrument.
4.	Write down short note on light sources and detectors used in UV Visible spectroscopy.

Section C (7 X 5 = 35)

5.	What are the different modes of vibrations in poly atomic molecules?
6.	Define isobestic point.
7.	Enumerate applications of atomic absorption spectroscopy.
8.	Write a short note on factors affecting fluorescence.
9.	What is the principle of flame photometry?
10.	Differentiate between normal phase and reverse phase chromatography.
11.	Give a brief note on detectors used in gas chromatography.
12.	Classify different types of chromatography used in pharmaceutical sciences.
13.	What are the uses of gel chromatography?

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Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 22

B.Pharmacy (Sem.-7)

INSTRUMENTAL METHODS OF ANALYSIS -THEORY

Subject Code : BP-701T

M.Code : 78387

Time : 3 Hrs. Max. Marks : 75

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains THREE questions carrying TEN marks each and student has to attempt any TWO questions.
3. SECTION-C contains NINE questions carrying FIVE marks each and student has to attempt any SEVEN questions.

SECTION-A

16 JAN 2021

Write briefly :

1) What is an auxochrome?

2) What is a Bathochromic Shift?

3) What is triplet electronic state?

4) What are various wavelength ranges in IR spectroscopy?

5) What do you understand by Nephlometry?

6) What is Rf value?

7) Give names of detectors used in Gas Chromatography.

8) What is the principle of capillary electrophoresis?

9) What is derivatization?

10) Give two applications of Gel Chromatography.

SECTION-B

11) Explain principle, instrumentation and applications of High Performance Liquid Chromatography (HPLC).

12) Give principle and detailing of various components of double beam UV-visible spectrophotometer.

13) Write a detailed note on paper chromatography.

SECTION-C

14) Explain various electronic transitions taking place in UV spectroscopy.

15) Write a note on various factors affecting flourescence.

16) Explain various sample handling techniques in IR spectroscopy.

17) Give principle and instrumentation of flame photometer.

18) Explain in brief the methodology involved in Thin Layer Chromatography.

19) Write a note on various columns used in gas chromatography.

20) Classify different ion-exchange resins and give applications of ion-exchange chromatography.

21) Write an exhaustive note on affinity chromatography.

22) Give principle and applications of atomic absorption spectroscopy.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.